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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/699,900 | 11/03/2003 | Carl Michael Hesler | A01448 | 4372 |

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EXAMINER

SHOSHO, CALLIE E

ART UNIT PAPER NUMBER

1714

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/699,900

Applicant(s)

HESLER ET AL.

Examiner

Callie E. Shosho

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1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. All outstanding rejections except for those described below are overcome by applicants' amendment filed 3/24/06.

The new grounds of rejection set forth below are necessitated by applicants' amendment and thus, the following action is final.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 3, and 6-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al. (U.S. 6,773,102).

The rejection is adequately set forth in paragraph 3 of the office action mailed 11/28/05 and is incorporated here by reference.

Additionally, it is noted that Chen et al. disclose that the ink comprises 5-60% solvent such as N-methyl-2-pyrrolidone or lower alkyl mono- or di-ethers derived from alkylene glycol, i.e. ethylene glycol monomethyl ether. Further, Chen et al. disclose that the surface tension of the ink is 20-35 dyne/cm (col.10, lines 20-27, 36-39, and 42-47).

4. Claims 1, 3, and 6-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Patel et al. (U.S. 5,977,210) taken in view of the evidence given in Sasaki et al. (U.S. 4,248,636) and Satake et al. (U.S. 5,814,685).

The rejection is adequately set forth in paragraph 5 of the office action mailed 11/28/05 and is incorporated here by reference.

Additionally, it is noted that Patel et al. disclose that the ink comprises 85-99.5% liquid vehicle comprising water and solvent in ratio of 97:3 to 50:50 wherein the solvent includes sulfolane (col.6, lines 58-60 and 65 and col.7, lines 1-6, 14-16, and 21-25).

5. Claims 1, 3, and 6-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng et al. (U.S. 6,239,193) taken in view of the evidence given in Milne (U.S. 4,849,286).

Cheng et al. disclose aqueous ink jet ink for printing on transparency material wherein the ink comprises aqueous emulsion polymer possessing glass transition temperature of 25-80 °C, pigment, nonionic surfactant, 0.1-20% penetrant such as N-methyl pyrrolidone (water-soluble surface agent) and 50-99% liquid vehicle comprising water and solvent in ratio of 97:3 to 50:50 wherein the solvent includes sulfolane (water-soluble surface agent). It is well known, as evidenced by Milne (col. 1, lines 10-14), that transparency materials are hydrophobic. The ink possesses surface tension of greater than 25 dyne/cm. There is also disclosed method for providing an image on the hydrophobic surface comprising forming the above ink, jetting the ink onto the hydrophobic surface, and then allowing the ink to dry (col.1, lines 45-55, col.3, line 62-

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col.4, line 2, col.4, lines 19-21 and 38-40, col.4, line 65-col.5, line 5, col.9, lines 15-20, col.10, lines 1-2, 8, 11-12, and 20-25, col.13, lines 49-50, and col.14, lines 49-50).

In light of the above, it is clear that Cheng et al. anticipate the present claims.

6. Claims 1, 3, and 6-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al. (U.S. 2004/0063807).

Wang et al. disclose aqueous ink jet ink for printing on hydrophobic surface wherein the ink comprises aqueous emulsion polymer possessing glass transition temperature of 10-80 °C, pigment, anionic or nonionic surfactant in amount to produce ink with surface tension of 20-60 dyne/cm, and 5-60% solvent such as N-methyl-2-pyrrolidone or lower alkyl mono- or di-ethers derived from alkylene glycol, i.e. ethylene glycol monomethyl ether. There is also disclosed method for providing an image on the hydrophobic surface comprising forming the above ink, jetting the ink onto the hydrophobic surface, and then allowing the ink to dry (paragraphs 8-19, 21, 29, 39, 44-46, and 51-54).

In light of the above, it is clear that Wang et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. 6,773,102) or Patel et al. (U.S. 5,979,210) either of which in view of Miyabayashi et al. (U.S. 2002/0107303).

The rejection is adequately set forth in paragraph 8 of the office action mailed 11/28/05 and is incorporated here by reference.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (U.S. 6,239,193) or Wang et al. (U.S. 2004/0063807) either of which in view of Miyabayashi et al. (U.S. 2002/0107303).

The disclosures with respect to Cheng et al. and Wang et al. in paragraphs 5 and 6 above are incorporated here by reference.

The difference between Cheng et al. or Wang et al. and the present claimed invention is the requirement in the claims of specific type of substrate.

Cheng et al. and Wang et al. each disclose the use of hydrophobic substrate, however, there is no explicit disclosure in either reference that the substrate is polyvinyl chloride.

Miyabayashi et al., which is drawn to ink jet ink, disclose using the ink on plastic substrate such as polyvinyl chloride (paragraph 109). It would have been within the skill level of one of ordinary skill in the art to choose type of substrate utilized depending on the end use of the ink.

In light of the disclosure of Miyabayashi et al., it therefore would have been obvious to one of ordinary skill in the art to use ink of Cheng et al. or Wang et al. on plastic substrate,

including polyvinyl chloride substrate as presently claimed, in order to produce ink for desired end use, and thereby arrive at the claimed invention.

37 CFR 1.131 declaration

10. The declaration filed on 3/24/06 under 37 CFR 1.131 has been considered but is ineffective to overcome the Chen et al. (U.S. 6,773,102) reference.

11. The evidence submitted is insufficient to establish a reduction to practice of the invention in this country or a NAFTA or WTO member country prior to the effective date of Chen et al.

Specifically, applicants have submitted exhibit in order to establish the actual reduction to practice of the invention at least as early as prior to the effective date of Chen et al. However, the exhibit does not provide evidence of such for the following reason.

The present claims require aqueous ink jet ink suitable for printing on hydrophobic surface wherein the ink comprises aqueous emulsion polymer having glass transition temperature of from 40 to 80 °C, pigment, an anionic or nonionic surfactant, and water-soluble surface agent.

In the exhibit submitted by applicants, i.e. pages from lab notebook, applicants disclose the invention as aqueous ink jet ink comprising binder, anionic surfactant, water-soluble surface agent, and pigment. However, there is no disclosure in the lab notebook pages that the binder is an aqueous emulsion polymer having glass transition temperature of from 40 to 80 °C. While page 2 of the 1.131 declaration states that the binder is an aqueous emulsion polymer having glass transition temperature of from 40 to 80 °C, there is no evidence in the lab notebook pages,

which only generically refer to “binder”, to support such statement. Thus, applicants’ exhibit does not provide clear and convincing evidence that the present invention was reduced to practice prior to the effective date of Chen et al.

For the above reason, it is the examiner’s position that the 1.131 declaration is ineffective in removing Chen et al. as a valid reference against the present claims.

Response to Arguments

12. Applicants’ arguments regarding Miyabayashi et al. (U.S. 2003/0107303) and Brown et al. (U.S. 2004/012213) have been fully considered but they are moot in view of the discontinuation of the use of these references against the present claims.

13. Applicants’ arguments and 1.131 declaration filed 3/24/06 have been fully considered but, with the exception of arguments relating to Miyabayashi et al. and Brown et al., they are not persuasive.

Specifically, applicants argue that Chen et al. cannot be used as a reference against the present claims in light of the 1.131 declaration that establishes a date of invention for the present invention that is prior to the earliest US filing date of Chen et al.

However, for the reasons set forth in paragraph 11 above, the 1.131 declaration is ineffective in removing Chen et al. as a relevant reference against the present claims.

Applicants also argue that Patel et al. is not a relevant reference against the present given that Patel et al. require the use of cationic surfactant that is outside the scope of the present claims that have been amended to cover the use of anionic or nonionic surfactant only.

However, while it is agreed that Patel et al. require the use of cationic surfactant, in light of the open language of the present claims, i.e. “comprising”, the scope of the claims is clearly open to the inclusion of additional ingredients including cationic surfactant.

Applicants also argue that Patel et al. fails to teach what water-soluble surface agents are needed to adhere to hydrophobic surface and what glass transition temperature levels are selected for the aqueous emulsion polymer.

However, with respect to the water-soluble surface agent, it is noted that Patel et al. disclose that the ink comprises 85-99.5% liquid vehicle comprising water and solvent in ratio of 97:3 to 50:50 wherein the solvent includes sulfolane (col.6, lines 58-60 and 65 and col.7, lines 1-6, 14-16, and 21-25).

With respect to the glass transition temperature, although there is no explicit disclosure of the glass transition temperature, it is calculated, using the preferred polymer of Patel et al., i.e. obtained from 82% styrene, 18% butyl acrylate, and 2% acrylic acid, and the well known glass transition temperatures of styrene, i.e. 100 °C, butyl acrylate, i.e. -53 °C, and acrylic acid, i.e. 106 °C, that the polymer possesses glass transition temperature of, for instance, approximately 53 °C. Given that the preferred polymer of Patel et al. possesses glass transition temperature that falls within the presently claimed range, it is the examiner's position that Patel et al. meets the requirements of the present claims with respect to glass transition temperature.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

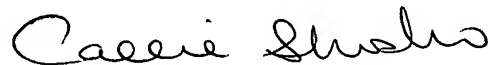
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
6/4/06